

REMARKS

Claims 1-4 remain pending after amendment.

The Claimed Invention

By way of review, applicants' claimed invention is a liquid-crystalline resin composition which comprises 0.01 to 10 parts by weight of an ultra-high molecular weight polyethylene having a molecular weight in excess of 600,000 and 100 parts by weight of a liquid-crystalline resin that exhibits anisotropic liquid-crystalline properties in a molten state. Applicants' claimed invention is neither disclosed nor suggested by the cited prior art.

Rejection of Claims 1-2 and 4 under 35 USC 102(b) Over Ward

Claims 1-2 and 4 stand rejected under 35 USC 102(b) as being anticipated by Ward et al U.S. Patent No. 6,017,834. This rejection respectfully is traversed.

Ward is directed to a monolithic polymeric product which is produced from a molecularly oriented melt spun or gel spun fibers of a thermoplastic polymer. The patent teaches that the thermoplastic polymer may be comprised of a polyolefin such as polyethylene. Alternatively, the polymer may be comprised of a

vinyl polymer, a substituted polyester, a polyamide, a polyetherketone, or a polyacetal. However, Ward does not anticipate the claimed composition comprised of an ultra-high molecular weight polyethylene together with a liquid-crystalline resin that exhibits anisotropic properties in the molten state. Ward is silent with respect to such a mixture of polymeric components.

The Examiner takes the position that Ward discloses a monolithic polymer having high stiffness and strength comprising a liquid crystalline polyethylene spun material such as parahydroxybenzoic acid.

The Examiner ignores the fact that the reference does not disclose the claimed combination of (1) ultra-high molecular weight polyethylene and (2) liquid-crystalline resin. The Examiner makes no reference to any portion of the reference which is directed to or suggests such a combination of these components.

The Examiner makes reference to the alleged use of parahydroxybenzoic acid in the reference (column 4, line 33). However, in applicants' view, the notation PHB does not refer to parahydroxybenzoic acid, but instead makes reference to polyhydroxybutyrate. Indeed, the reference teaches the use of

1,2-dihydroxy benzoic acid at column 4, line 44 as being a preferred acid, not p-hydroxybenzoic acid.

Even assuming that the reference teaches the use of polyhydroxybenzoic acid, the reference does not teach the use of parahydroxybenzoic acid as a repeating unit in a liquid crystalline resin as recited in applicants' claim 2, instead merely teaching that polyesters may be comprised of such a monomer.

The Examiner's statement that "anisotropic properties may be exhibited in the molten state" is without basis and pure speculation.

In view of the above, the rejection is without basis and should be withdrawn.

***Rejection of Claims 1-2 and 4 under 35 USC 102(b)
Over Takayanagi***

Claims 1-2 and 4 stand rejected under 35 USC 102(b) as being anticipated by Takayanagi U.S. Patent No. 5,690,859. This rejection respectfully is traversed.

The Examiner takes the position that the reference teaches a liquid crystalline polymeric composition comprised of wholly aromatic liquid crystal polymer, a semi-aromatic liquid crystal

polymer, and a thermoplastic resin wherein the thermoplastic resin is an ultra-high molecular weight polyethylene.

However, the reference merely teaches an ultra-high molecular weight polyethylene as one of a number of examples of a thermoplastic resin. The reference is also silent with respect to the molecular weight of the polyethylene.

As illustrated at Table 1 of the instant specification, when the molecular weight of the polyethylene is less than 500,000 (see Comparative Example 7), the blister score is inferior in comparison to Examples 1-4.

The reference thus fails to disclose or suggest the claimed invention, and the rejection should be withdrawn.

Rejection of Claim 3 under 35 USC 103(a)

Claim 3 stands rejected under 35 USC 103(a) as being unpatentable over Ward in view of Nagashima et al U.S. Patent No. 6,194,524. This rejection respectfully is traversed.

The deficiencies of Ward are discussed at length above. In summary, Ward fails to disclose or suggest the claimed combination of ultra-high molecular weight polyethylene together with a liquid-crystalline resin having anisotropic properties in the melt phase.

Nagashima et al fails to overcome the deficiencies of Ward. Nagashima is directed to a thermoplastic resin composition comprised of two or more thermoplastic resins together with a polyester (as defined). A variety of thermoplastic resins suitable for use in the disclosed composition are taught at column 3, lines 54-68 of the patent.

However, Nagashima fails to disclose or suggest the claimed composition. Nagashima makes no mention of the use of an ultra-high molecular weight polyester having a molecular weight in excess of 600,000. As a result, the recited combination of the two references cannot result in the claimed invention.

Applicants' comparative data rebuts any suggestion that the recited combination yields the claimed invention. The Examiner's attention is again directed to applicants' Table 1 at page 18 of the specification in this regard. Table 1 confirms that the combination of the ultra-high molecular weight polyethylene (molecular weight in excess of 600,000) together with a liquid-crystalline resin yields a composition which exhibits highly desirable mold release properties and desirable blister scores. See Examples 1-4.

Comparative examples 1-7 confirm that compositions falling outside the scope of the claims do not provide the desirable

results exhibited by examples 1-4. Comparative example 4 contains only a liquid-crystalline polymer and no polyethylene component. Comparative examples 2-7 contain a polyethylene component - but the polyethylene component is not an ultra-high molecular weight polyethylene. In each case the mold release properties are inferior to those exhibited by Examples 1-4.

The rejection is thus improper and should be withdrawn.

The application is now believed to be in condition for allowance and an early indication of same is earnestly solicited.

In the event that any outstanding matters remain in this application, Applicants request that the Examiner contact James W. Hellwege (Reg. No. 28,808) at (703) 205-8000 to discuss such matters.

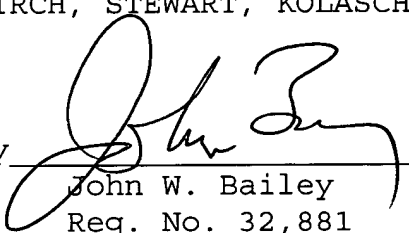
Applicant respectfully petitions under the provisions of 37 CFR 1.136(a) and 1.17 for a two-month extension of time in which to respond to the Examiner's Official Action. The Extension of Time fee in the amount of \$420.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Very truly yours,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By


John W. Bailey
Reg. No. 32,881

JWB/JWH/sh

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000